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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/802,842 | 03/18/2004 | Junshin Sakamoto | 503.43553X00 | 5066 |
| 20457 | 7590 | 06/06/2006 | EXAMINER | |
| ANTONELLI, TERRY, STOUT & KRAUS, LLP 1300 NORTH SEVENTEENTH STREET SUITE 1800 ARLINGTON, VA 22209-3873 | | | PHAM, HAI CHI | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2861 | |

DATE MAILED: 06/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/802,842

Applicant(s)

SAKAMOTO ET AL.

Examiner

Hai C. Pham

Art Unit

2861

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>03/18/04</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ota et al. (U.S. 6,061,079) in view of Paoli et al. (U.S. 5,956,070) and Kataoka et al. (U.S. 4,253,102).

Ota et al., an acknowledged prior art, discloses a full color image forming apparatus, which includes a semiconductor laser array (40) arranged into four groups each including two laser elements (Fig. 15) (col. 8, lines 7-17), a beam splitter (7), which splits the respective laser beams for every lines on the semiconductor laser array so that two laser beams emitted from one group on the semiconductor laser array scan a same photosensitive drum (col. 8, lines 41-46) (Fig. 16), and a beam deflection means (polygon mirror 4) which deflects in common the multi laser beams for every lines emitted from the

semiconductor laser array and irradiates the same onto the respective photosensitive drums.

Ota et al. fails to disclose the semiconductor laser array comprising laser beam emitting points arranged in a two-dimensional array such that the number of rows of the light emitting elements is the same number of the photosensitive drums, and the beam splitter splitting the respective laser beams for every line on the semiconductor laser array so that m laser beams emitted from one row on the semiconductor laser array scan a same photosensitive drum (claim 1), the first semiconductor laser array and a second semiconductor laser array each of which laser beam emitting points are arranged m in the row direction and $n/2$ in the line direction as the half number of the photosensitive drums (claims 2-3).

Paoli et al. discloses a full color xerographic printer (200, Fig. 10) in which on photosensitive drums of n ($n = 4$) pieces (drums 244, 248, 250, 254) corresponding to respective colors are formed respective latent images by irradiation of laser beams comprising, a semiconductor laser array (202, Fig. 11) of which laser beam emitting points are arranged m ($m > 2$) in the row direction thereof (four rows 208, 210, 212, 214 of light emitting sections) and n ($n = 4$) in the line direction thereof as the same number of the photosensitive drums (4 rows of light emitting sections) (col. 9, lines 14-17), a beam splitting means (beam separators 236, 238, 242) which splits the respective laser beams for every line on the semiconductor laser array so that m laser beams emitted from one of the rows on the semiconductor laser array scan a same photosensitive drum (col. 10, line 66 to col. 11, line 10) (Fig. 10). Paoli et al. further discloses in Fig. 13 the semiconductor laser array (300) having the first and second semiconductor laser arrays (302 and 304),

each of which laser beam emitting points are arranged m ($m > 2$) in the row direction and 2 rows in the line direction, the number of rows in each of the first and second semiconductor laser array corresponding to the half number of the photosensitive drums.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to provide the device of Ota et al. with a two-dimensional laser array having a number of rows corresponding to the number of the photosensitive drums as taught by Paoli et al. The motivation for doing so would have been to provide a monolithic laser array of a convenient length to increase the number of scanning lines to expose each of the photosensitive drums.

Ota et al. also fails to teach the arrangement direction of m beam spots irradiated onto one of the photosensitive drums or belts is inclined by an angle with respect to the main scanning direction.

Kataoka et al. discloses an image forming apparatus comprising a semiconductor laser array having an arrangement of a plurality of light emitting parts inclined by an angle $(90^\circ - \theta)$ with respect to the direction x (Figs. 3-4) so that the arrangement direction of the plural beam spots irradiated on the photosensitive drums is inclined by the same angle $(90^\circ - \theta)$ with respect to the main scanning direction (main scanning direction x') (Fig. 6).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to been to set the arrangement of the semiconductor laser array of Ota et al. in an inclination angle such that the arrangement direction of the plural beam spots irradiated on the photosensitive drums is inclined by the same angle with respect to the main scanning direction as taught by Kataoka et al. The motivation for doing so would

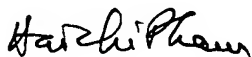
have been to increase the pitch resolution of the scanning lines on the surface of the photosensitive drum.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai C. Pham whose telephone number is (571) 272-2260. The examiner can normally be reached on M-F 8:30AM - 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vip Patel can be reached on (571) 272-2458. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



HAI PHAM
PRIMARY EXAMINER

May 30, 2006